

W5YI

America's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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Shared Ham Spectrum Allocated to "Intelligent Transportation Systems"

"This decision will enable broader, innovative uses of telecommunications technology and result in enhanced safety and efficiency of our nation's surface transportation system." *U.S. Transportation Deputy Secretary Mortimer L. Downey.*

"Today's decision is one more building block as we work toward our goal of integrated ITS deployment this decade in 75 cities and 25 states. Already deployment of different ITS solutions across the nation have demonstrated between 15 and 50 percent reductions in crashes." *Federal Highway Administrator Kenneth R. Wykle.*

"It truly signals the convergence of the telecommunications and transportation industries in finding solutions that will save lives, time, money and improve the quality of life." *ITS America's Paul Najarian.*

On October 21, the FCC followed through on its 1998 proposal to allocate 75 megahertz of 5.9 GHz range spectrum to the mobile service for futuristic *Dedicated Short Range Communications* ("DSRC") systems operating in the *Intelligent Transportation System* ("ITS") radio service. This 5 cm spectrum is also allocated on a secondary basis to the Amateur Service.

The FCC was mandated to provide the spectrum not later than January 1, 2000 by the *Transportation Equity Act for the 21st Century* which was signed into law by the President two days before the release of the *NPRM*, on June 9, 1998.

ITS, a national initiative of the U.S. Department of Transportation, refers to various transportation systems which apply emerging information technologies to address and alleviate traffic congestion problems. The Transportation Department was authorized by Congress to develop a program for smart transportation systems in 1991.

The FCC allocation culminates many years of work initiated by the department's *Federal Highway Administration*. The FHWA worked in collaboration with the Virginia-based, non-profit *Intelligent Trans-*

portation Society of America which petitioned the FCC in May 1997 (RM-9096) to add ITS as a new mobile service with co-primary status.

Specifically, the commissioners voted unanimously to allocate 75 MHz of spectrum between 5850-5925 megahertz (MHz) to "DSRC" which is defined as a broad assortment of short-range line-of-sight wireless communications links between vehicles traveling at highway speeds and roadside systems, such as at toll booths, intersections or on the open highway.

Actually electronic toll tags are available today at 902-928 MHz as part of the *Location and Monitoring Service* (LMS) but more spectrum is needed to provide for all of the potential wireless services envisioned by Congress. The 75 MHz is, by far, the largest allocation of spectrum that the FCC has ever given to transportation

DSRC and ITS

DSRC applications will include real-time travelers' alerts, expanded automatic toll collection, information services to mass transit drivers en-route and riders (such as ice and freeze warnings), inter-

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section collision avoidance, emergency dispatch services, transit or emergency vehicle signal priority (which allows a bus, police car, fire truck, or ambulance to command a green light approaching an intersection), and electronic parking payments. The capability even exists to make "wireless credit cards" a reality. Parking lot charges, gas fill-ups or even fast food from drive-through restaurants could all be billed to the same card.

DSRC will also process commercial vehicle clearance and electronic safety inspections with roadside facilities at highway speeds instead of requiring trucks to pull off the highway. And Motorola and Microsoft are both interested in providing wireless onboard computers and applications to commercial and private vehicles. The possibilities are endless.

Using advanced surveillance systems, ITS can detect the early stages of a traffic bottleneck and traffic can then be directed to other routes to relieve the congestion and to provide faster and more efficient routes for travelers.

New technologies enable this type of surveillance and guidance response to occur in real time, and therefore, to allow potential congestion situations to be addressed *before* they develop into serious traffic jams.

The allocation means that U.S. auto makers can begin installing transponders as original equipment on cars. Deploying ITS not only enhances safety it also reduces the need for new urban highways by as much as 35 percent.

"These links will be essential to many ITS services that are expected to improve traveler safety, decrease traffic congestion, and facilitate the reduction of air pollution and conservation of fossil fuels," the FCC said. "Providing additional spectrum for ITS services would further the goals of Congress, the Department of Transportation and the ITS industry to improve the efficiency of the U.S. transportation infrastructure and to facilitate the growth of the ITS industry."

The Commission said that the spectral environment and propagation characteristics of the 5.9 GHz band are appropriate for short range DSRC applications and would enable sufficient signal coverage and considerable frequency reuse.

The FCC believes that DSRC operations, Government radar operations and Earth-to-space (Fixed Satellite Service) operations should be able to share the spectrum on a co-primary basis subject to coordination. The FCC also noted that frequency and geographic separation should enable DSRC operations to share the spectrum with secondary Amateur Radio Service operations.

Amateur 5 cm band

In addition to being the Amateur 5 cm ham band, a portion of the 5.650 to 5.925 GHz band is also allocated

to ISM (Industrial, Scientific and Medical) devices. Until further notice, Amateurs may continue to use the 5 cm band on the condition that they not cause harmful interference to FSS, military radar or ITS operations. The Amateur Service is not protected from interference generated by the co-primary users of the band or from interference from ISM devices operating at 5.8 GHz.

Public Comments

The Notice requested comment on the spectrum sharing potential of DSRC operations in this band.

ITS proponents generally supported the allocation of 75 megahertz of spectrum at 5.85-5.925 GHz for use by DSRC-based ITS services. On the other hand, the American Radio Relay League argued that the Commission "...had not adequately considered alternative spectrum above 40 GHz that is relatively available and could be used for short range communications."

The FCC disagreed saying that "...the propagation characteristics of millimeter wave spectrum could not accommodate DSRC applications [since communications] tend to be sharply attenuated by the atmosphere, foliage and other objects."

It was the League's belief that the DSRC allocation would substantially reduce the value of the 5.9 GHz band to the Amateur Radio Service.

The FCC said "We are sympathetic with ARRL's concerns that an ITS allocation at 5.9 GHz could impact amateur service use in the 5.650-5.925 GHz band. We note, however, that the amateur service is afforded secondary status in these bands and that, as the *NPRM* pointed out, this secondary amateur service allocation covers 275 megahertz of spectrum in the 5.650-5.925 GHz band."

"We also note that the amateurs historically have been able to design and modify their systems to avoid or minimize interference given the flexibility in selecting transmitting channels that Part 97 affords amateur service stations. The record indicates that amateur service use of the 5.85-5.925 GHz band is primarily for point-to-point networks. We believe that spectrum sharing between the amateur service point-to-point links and DSRC operations is viable."

"The DSRC applications will generally operate over relatively short distances and will use directional antennas. While DSRC operations along the path of a higher power amateur service point-to-point link may experience interference, we conclude that these occurrences would be infrequent and interference could be mitigated by using alternative frequencies, shielding, informal coordination or by other means. Therefore, we find that DSRC operations in the 5.85-5.925 GHz band are unlikely to receive significant interference from or cause interference to amateur operations."

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"ARRL suggests that coordination between the Amateur radio service and DSRC operations would promote spectrum sharing in the 5.85-5.925 GHz band. Given that amateur operations are secondary in this spectrum range, are not extensively deployed, and considering the availability of remedies if interference should occur; we do not anticipate that a formal coordination procedure will be necessary. However, the Commission may revisit this matter in the future as DSRC operations develop and more experience is gained with sharing this spectrum."

"We encourage any ITS entities wishing to use the 5.85-5.925 GHz band to informally notify the ARRL or the local amateur service community of its intended operation. In this regard, we note that in many areas of the country, amateur radio operators have established clubs which can disseminate information locally, that bulletin boards devoted to specialized interests in amateur radio are available on the Internet, and that databases of amateur radio operators and their locations also are readily available on the Internet."

Some amateur radio interests opposed the allocation on the basis that a 75 megahertz allocation was believed to be excessive. The FCC said the allocation was warranted to provide sufficient spectrum to facilitate the development and growth of DSRC applications. The commission added that the 75 megahertz allocation would foster global research, technological innovations, and industry standards-setting activities that are expected to result in the production of affordable DSRC equipment.

The Commission said that the record in this proceeding overwhelmingly supports the allocation of spectrum for DSRC-based ITS applications to increase traveler safety, reduce fuel consumption and pollution, and continue to advance the nation's economy.

The FCC established the peak transmit DSRC output power at 750 mW with up to 16 dBi in antenna gain. If transmitting antennas of directional gain greater than 16 dBi are used, the peak transmit output power must be reduced by the amount in dB that the directional gain of the antenna exceeds 16 dBi, i.e., the device's maximum EIRP shall not exceed 30 W EIRP. However, the peak transmitter output power may be increased to account for any line losses due to long transmission cables between the transmitter and the DSRC device's antenna, provided the EIRP does not exceed 30 W.

The next step involves how to "channelize" the spectrum and how to assign the licenses. The commission is deferring this to a later proceeding because standards addressing such matters are still under development by the Department of Transportation. Once such standards are developed, the Commission will take whatever action is necessary to implement the standards related to DSRC use. "We expect that will happen sometime early next year," the FCC said. [Action by the Commission October 21, 1999, by Report and Order, ET Docket 98-95]

AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of November 1999:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0JI	KI0RB	(***)	KC0CQS
1 (*)	AA1UU	KE1LS	(***)	KB1ENQ
2 (*)	AB2GM	KG2QY	(***)	KC2FPW
3 (*)	AA3SU	KF3DL	(***)	KB3EIM
4 (*)	AF4QD	KV4CO	(***)	KG4FDM
5 (*)	AC5TJ	KM5WI	(***)	KD5INB
6 (*)	AD6JH	KR6CZ	(***)	KF6ZET
7 (*)	AC7BO	KK7UP	(***)	KD7GWD
8 (*)	AB8EN	KI8JG	(***)	KC8NHD
9 (*)	AA9XL	KG9QG	(***)	KB9VJF
N. Mariana	NH0P	AH0BC	KH0IF	WH0ABM
Guam	(**)	AH2DL	KH2UO	WH2AQA
Hawaii	WH7E	AH6PZ	KH7XM	WH6DGB
Am.Samoa	AH8R	AH8AH	KH8DQ	WH8ABI
Alaska	AL0Q	AL7RM	KL0UJ	WL7CVD
Virgin Isl.	(**)	KP2CP	NP2KQ	WP2AIL
Puerto Rico	WP3F	KP3BM	WP3EQ	WP4NOQ

* = All 1-by-2 & 2-by-1 call signs have been assigned.

** = All 2-by-1 call signs have been assigned.

*** = Group "C" (N-by-3) call signs have now run out in all districts. Group "D" calls now being assigned.

Note: New prefix numerals now being assigned in Puerto Rico (KP3/NP3/WP3), Hawaii (AH7/KH7/WH7) and Alaska (AL0/KL0)

[Source: FCC Amateur Service Database, Washington, DC]

NEW AND UPGRADING AMATEUR STATISTICS

For the Month of October 1997, 1998 & 1999

License Class	New Amateurs			Upgrading Amateurs		
	1997	1998	1999	1997	1998	1999
Novice	40	32	34	2	1	0
Technician	862	1024	881	1	0	0
Tech Plus	91	122	112	251	222	353
General	20	18	19	268	245	115
Advanced	4	1	5	182	187	158
Extra Class	4	4	1	175	131	163
Total:	1021	1280	1052	879	786	789
Decrease:	(39.4%)	+25.4%	(17.8%)	(9.9%)	(10.6%)	+0.4%

■ The FCC announced on October 29th that the maximum license exam test fee reimbursement that can be collected during calendar year 2000 is \$6.66. This increase is based on a 2.6% increase in the CPI (Cost of Living Index) between Sept. 1998 and Sept. 1999.

Per previous policy, both the ARRL/VEC and the W5YI-VEC will be rounding this maximum figure down to the nearest 5¢. Accordingly, these VECs will be charging \$6.65 for Amateur Service license examinations administered after January 1, 2000.

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CUTTING EDGE TECHNOLOGY

■ The Wall Street Journal reported (on Oct. 21) that **Blockbuster Inc., will begin offering video rentals on its Web site next year** and is considering investing in technologies that would transmit movies directly to the home via the Net.

"As we continue to grow our core business and our market share in the physical distribution of movies, at the same time we are moving on parallel paths to occupy a significant market share in the electronic delivery of movies," says Blockbuster CEO John Antioco.

■ **Hate it when a cell phone goes off in a movie? "Cellphone buster" creates a haven of peace** – Netline Communications Technologies Ltd., a small Israeli startup company in Tel Aviv is causing quite a commotion with their "C-Guard Cellular Firewall." The white wall-mounted cigar-box size device blocks cell phone use – both sending and receiving – within a hundred-yard radius.

A common use is to establish "ring free zones" in movie theaters, restaurants, libraries, churches, concert halls – any place where noise annoys and/or distracts other people ...and in hospitals, laboratories and aboard aircraft where electromagnetic radiation is thought to interfere with sensitive equipment. Netline says C-Guard's very low (20 milliwatt) power levels will not interfere with aircraft control systems.

The technology, originally created for the Israeli military, is seen as an answer when the "Please Switch Off Cellular Phones" signs don't work. The system is on trial with the Israeli army which wants to bar mobile-phone calls from its most sensitive installations.

The device is based on electronic warfare technology, and uses a technique called "control channel signaling" to block cellular traffic. It basically prevents the handshake between the handset and the base station in a designated area.

This is accomplished by transmitting a low-power signal to the handset that prevents any effective communications with the closest base station which is necessary to place or receive a cell phone call.

The receiver/transmitter device detects the activity of any nearby wireless device and emits bursts of static on the

same radio frequency. Cell phones in the area report "no service" or "signal not available" to their owners, and incoming calls do not get through.

When C-Guard is turned off, all cellular handsets automatically re-establish communications with the cellular systems and provide full service.

Although the use of transmitters to jam wireless transmissions in certain restricted areas is apparently legal in many countries, it is not lawful in the U.S. Japan, for example, licenses the use of wireless telephone jammers.

Netline markets the Firewall over the Internet at <<http://www.netline.co.il/default.htm>> for roughly \$1,000.

Publicity about the gadget prompted the FCC's Office of Engineering and Technology to issue a Public Notice on October 13th. It warns anyone who sells, purchases and/or uses such technology in any way in the United States to prevent or jam cellphone operation is risking harsh penalties. "Violators are subject to fines as high as \$11,000 for each violation or imprisonment for up to one year." The equipment can also be seized and forfeited to government, the FCC said.

OET emphasized that these regulations apply to all transmitters that are designed to cause interference to, or prevent the operation of, other radio communication systems as well.

The manufacturer's position is that no one has the right to invade one's private property and that an owner is entitled to use C-Guard to protect himself from "signal trespass" nuisance.

The firm says the device is being sold to American customers which they would not identify. Some customers are buying the box to prevent information from going out of secure installations or offices.

The company is developing a variation of the basic product which permits some cell phones to work and zaps others. The successor will allow, for example, doctors to be reached at a restaurant while calls to other diners would be barred.

■ **Wireless Internet** – Cisco Systems Inc, the world's largest maker of computer networking equipment, says it plans to set a new wireless standard for transmitting data at speeds comparable to cable modem and DSL service. Cisco said its acquisition of Clarity Wireless, Inc., has solved the problem of buildings and other objects getting in the way of wireless signals. Cisco will make the technology avail-

able to as many companies as possible – including competitors – so that it becomes the industry standard.

■ **Networked homes is the wave of the future.** The Yankee Group, a Boston-based market research firm, says that about 650,000 of the 99 million U.S. homes already have some sort of multiple computer networking installed. And homes are being built with digital networking included. This number will explode to some ten million U.S. Homes by 2003.

"The networked digital home will become a reality because we finally have compelling applications, affordable networking technology and consumer demand. A faster Internet brings with it the need to share access among multiple personal computers and to deliver Internet and multimedia content to different appliances and areas around the home," the Yankee Group says.

■ **A computerized pen that recognizes handwriting and records whatever you write** has been developed by researchers at BT (British Telecom). The pen, called "SmartQuill" includes a sensor called an accelerometer that monitors your hand's movements. Self-contained: It has no external wires. <<http://www.innovate.bt.com/showcase/smartquill.>>

■ **Enjoy that roll of 60/40 solder while you can.** Industry is shifting to lead-free solder. The tin/lead recipe we've used as hams for decades will soon give way to other combinations of elements. Some Japanese electronics manufacturers have already switched to a mixture of tin, silver and bismuth, and European companies are walking the same path. Lead should be gone from commercial soldering applications within 10 years. One problem with most new solder mixtures is their higher melting point, which may damage smaller components. Environmental concerns have forced the change.

■ **"It seemed like a good idea at the time..." Well, more time is necessary.** The European Commission wanted to require U.S. manufacturers to provide labeling, catalogs and packages that are compliant with the Metric System if they wanted European distribution. They established a deadline of January 1, 2000. Doing so, however, costs a great deal of money for many companies because they will have to create new storage areas, new software, and other time-consuming projects. The European Commission agreed

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to push back the deadline to 2010, giving American companies more time to adapt.

■ **Many important Web sites have been "attacked" by hackers.** The CIA and the *New York Times* are only a couple of organizations whose sites have been broken into and modified by unauthorized programmers. Hours or even days may pass before the people in charge of a Web site realize that something has happened.

Red Alert is a service that logs on to a client's Web site several times each hour, checking its contents against a known-good reference copy. If anything is different, Red Alert notifies the customer that someone may have done some tampering. ■ Can't find a way to listen to those 78-rpm records? If your turntable still works on 45 or 33, fear not. The DC-ART software package from Tracer Technologies for the PC lets you digitally record a song from one speed and immediately transform it to another speed. Play a 78 at 45 rpm, recording into your PC as you go, and when you're finished, one mouse click instantly plays back the song file at the proper speed.

■ **It's not always possible for one FM radio station to cover a very large market with one transmitter,** so engineers use multiple transmitters. They use GPS-synchronized transmitters to delay the audio just enough so that all listeners hear the music at the same time, thus avoiding echo and distortion.

■ **Digital movie theaters face high initial costs,** but the long-term benefits may make the transition from analog projection systems worthwhile. Film prints run over \$1,000 per copy, and take time to be developed in the film labs; digital movies transmitted over a secure satellite or fiber-optic link don't suffer degradation and can cut distribution time by several weeks. A digital movie theater with high-definition video and sound could be used during weekday mornings, when movie attendance is low, for business meetings for companies that don't use videoconferencing enough to justify the expense of buying all the equipment.

■ **The Coca-Cola Co. recently announced** that they are experimenting with vending machines that automatically raise the price of a can of soda as the air temperature goes up. The idea behind this, says Coca-Cola, is supply and demand; people drink more soft drinks when the weather gets hotter

EMERGING COMMUNICATIONS

■ Now, you don't have to disconnect from the Internet to make a phone call. **Free banner-advertising supported web-based long distance telephone service has arrived!** Based in Silicon Valley, www.dialpad.com has perfected the Voice over Net (VON) Protocol so you can make unlimited 100% free phone call to anybody in US as long as the other party has valid phone number. It is not a PC-to-PC service which requires the same software installed on both PCs to converse.

Actually you don't need to manually download and install any software...dialpad.com uses a java applet. The recipient only needs a plain-ole telephone (POT)! You can make a call while you are browsing the Internet. Banner ads are targeted to your preferences and demographic information which is collected during registration. All you need is a 33 or 56 kbs modem, Windows 95/98, MS Internet Explorer or Netscape Communicator browser (at least version 4.0), a sound card, speaker/microphone or headset and an least 33 kbs Internet connection.

■ **Intelligent wireless PCs for your car!** - Seattle-based, InfoMove, has developed a service which delivers a broad range of real-time, customized Internet content and traffic data through handheld devices connected in cars.

The company, founded in 1998, will also license its service to leading Internet portals, hardware manufacturers, automotive companies and other organizations as private label and co-branded solutions.

Drivers and passengers will be able to place their palm-size PC in a cradle in their car and instantly receive personalized content including real-time traffic advisories, audible GPS-based turn-by-turn directions, vehicle diagnostics and maintenance alerts, emergency services, location-based advertising and text-to-speech enabled e-mail capabilities.

"Every new car and many existing cars in the U.S. will have Internet-enabled devices as standard equipment by 2005," said Brook Lang, founder and chairman of InfoMove.

The firm plans to be able to deliver this new wireless Internet technology in early 2000.

■ **Wireless to surpass wireline telephones** - A new ITU report presented at

Telecom '99 in Geneva says the number of wireless phone users will most likely exceed the number of wired customers between 2001 and 2007. According to the report, the number of wireless phone users will reach more than 500 million by the end of next year, up from more than 300 million users at end of 1998.

■ **In a bid to extend its business into wireless devices with Internet access,** Intel will pay \$1.6 billion to buy wireless chipmaker, DSP Communications, Inc. They make "digital signal processing" chips that transmit data between mobile handsets and the wireless network. Wireless Internet access is a hot technology since Sprint PCS introduced Web phone service last month.

■ **Teledesic, the \$9 billion LEO orbiting high speed "Internet in the sky" has been put on a three month hold** in light of Iridium's bankruptcy filing.

Teledesic is considering three options, to position itself as a one-stop-shop for satellite communications services; to begin commercial service before the originally scheduled 2004 launch date; and to consider different types of satellite orbits. Teledesic has also reduced the number of satellites to be deployed by two-thirds.

Founded in 1990, Teledesic is owned by McCaw Cellular Communications Inc. and the Microsoft Corporation. It originally proposed to construct, launch, and operate a constellation consisting of 840 satellites in low earth (non-geostationary) orbits.

The FCC authorized Teledesic to operate in the 28.6 - 29.1 GHz (uplink) and 18.8 - 19.3 GHz (downlink) band segments. Each satellite will be interconnected with eight other satellites in the 65 - 71 GHz band.

Boeing is leading the international effort to design, build and launch the network. See: <<http://www.teledesic.com>>

COMPUTER INFO

■ **According to Microsoft CEO Bill Gates, believes we will eventually have a "thinking computer."** In an interview aired October 17th by the British Broadcasting Company, Gates' said "The next stage technologically is accessing the Internet through the television and the telephone. Operating the computer by speaking to it is also likely in the near

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future, and the computer will answer back. One of the things you will be able to select is the personality. None of the work being done on software today holds the potential to create a truly intelligent device."

■ Computers: Ten years from now!

Ray Kurzweil developed the world's first print-to-speech reading machine for the blind and many other high tech inventions.

Here are some predictions for 2009 from his latest book, *The Age of Spiritual Machines, When Computers Exceed Human Intelligence* (Viking, 1999)

- A \$1,000 personal computer will perform about a trillion calculations per second. Supercomputers will match at least the hardware capacity of the human brain - 20 million billion calculations per second.
 - Portable computers will be available in a wide range of sizes and shapes; commonly embedded in clothing and jewelry such as wristwatches, rings, earrings and other body ornaments. (By 2019, they'll be hidden in our bodies.)
 - People will typically have at least a dozen computers on and around their bodies, which are networked using "body LANs."
 - These computers will provide communication facilities similar to cellular phones, pagers, and Web surfers, monitor body functions, provide automated identity (to conduct financial transactions and allow entry into secure areas), provide directions for navigation and perform a variety of other serves.
 - These truly personal computers will have no moving parts - everything will be electronic. Cables will disappear. Communication between components, such as pointing devices, microphones, displays, printers, and the occasional keyboard will use short distance wireless technology.
 - Computers will use wireless technology to plug into the ever present worldwide network, providing reliable, instantly available very-high-bandwidth communications.
 - Digital objects such as books, music, albums, movies and software will be distributed as data files through wireless network and typically will not have a physical object associated with them. Books, magazines and newspapers will be read on computer displays that have all the qualities of paper.
 - Computer displays, built into eyeglasses, will allow people to not only see the
- normal visual environment, but a virtual image that appears to hover in front of the viewer. The virtual images are projected directly onto the user's retinas.
- Translating telephone technology (where you speak in English and are heard in Japanese) will be a routine capability of an individual's personal computer which also serves as a phone.
 - Telephone communication will be primarily wireless in 2009 and routinely include high-resolution moving images.
 - All media (books, magazines, newspapers, television, radio, ...movies) will converge and exist as instantly downloadable digital objects - that is, files - distributed by the ever present high-bandwidth, wireless information web.
 - Teachers will primarily attend to issues of motivation, psychological well-being and socialization. Every student will carry a computer of their own, a thin, tablet-like device weighing under a pound. Schools will rely on software approaches with learning materials being accessed through wireless communications. Eventually (ten years later) learning, accomplished using virtual teachers, will constitute the primary focus of the human species.
 - At least half of all business transactions will be conducted online.
 - The average household will have more than 100 computers, most of which are embedded in appliances and built-in communication systems.
 - Visits to the doctor will decrease as physicians examine people using visual, auditory and tactile examination from a distance. Eventually, computerized health monitors built into watches, jewelry and clothing, will diagnose health conditions and provide a range of remedial recommendations and interventions.
 - Technology will allow non-musicians to create music.
 - People will touch and feel objects and other people at a distance. The online chat rooms will be replaced by virtual environments where people will have sexual experiences at a distance with other people, as well as virtual partners.
- It appears that it is going to be an interesting ten years. Check out: <<http://www.kurzweiltech.com>>.
- **Apple Computer has backed off from what amounts to a retroactive price increase.** It seems that buyers of their G4 computer had their paid orders

canceled. And when they tried to reorder, the price was hiked up to \$350 more.

The newer G4 model which sports a faster 500 megahertz microprocessor will not be available until early next year due to a shortage of the computer chips from Motorola. Apple eventually reversed its decision and will honor the original price.

■ **The battle is over and (again) the clones have won. IBM's "Aptiva" PC brand heads to the Web.** - Due to plunging retail prices computer giant International Business Machines Corp., has made a decision to stop selling its money-losing line of "Aptiva" consumer desktop PCs in retail stores after the holiday selling season.

It will redirect its efforts to sell its products over the Web as rival PC makers Dell and Gateway have done. By eliminating wholesalers and retailers, the Dell and Gateway have shaved costs.

For example: Dell now offers a new Pentium III 450 MHz PC (32MB RAM, 6.4GB hard drive, 1.44MB floppy, 40X CD drive, MS IntelliMouse 15" monitor w/bundled software) at \$999. Add \$29 for sound card, \$49 for 56KB modem. <www.dell.com/smallbiz/products/dim.htm> (Item No. 04-04, Tel. 1-800-915-3355.) IBM has no similar product in this price range.

IBM plans to launch a \$20 million Aptiva brand advertising campaign to persuade people to visit its newly redesigned <www.ibm.com/shop> Web site. It also says it will trim up to 1,000 jobs from its PC group as it folds its unprofitable consumer line into its broader PC operation. Last year, IBM lost nearly \$1 billion in its PC unit.

IBM has slid to become the world's No. 3 vendor of PCs. Dell Computer is now the leader having seized that position from Compaq. Dell is also the leader in the U.S. education market having beat out Apple Computer for the first time.

Price is now more important to PC buyers than features. And three quarters of all consumer PCs now sell for less than \$1,000 and nearly half below \$600.

IBM says it is also being hurt as big customers fix year 2000 glitches in older computer equipment instead of making major new purchases. IBM warned of lower earnings until after the first of the year.

■ **E-mail use at home is growing** and friends are by far the principal recipients. Thirty percent of home e-mail users say they get six to 20 messages a day; 10%

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report receiving 21 to 50 e-mails a day!
Where e-mail goes:

Friends	91%
Companies, requests for information	53%
Co-workers, business colleagues	42%
Children	34%
Spouse	13%

Source: U.S. Consumer Electronics Manufacturers Association (CEMA).

■ **Is some of your old software not working on your new computer?** The hardware may be outrunning it. Some programs depend upon delays, generated by program loops, to allow ports or interrupts enough time to respond properly. A newer microprocessor may be the same type, but if it runs faster than the old one, the software may never receive the proper information from the outside world in time and won't run.

INTERNET NEWS

■ **Marc Andreessen, is the Univ. of Illinois college student who more or less "invented" the first web browser** (called "Mosaic). After college, he co-founded Netscape Communications. Later when Netscape was bought by AOL, Marc became its Chief Technology Officer - a position from which he recently resigned.

He is not saying very much about his new Internet startup firm, Loudcloud, Inc., which was just formed in September. But industry insiders say Loudcloud is building an innovative back-end platform to build other business websites. The "boiler plate template" will permit businesses to quickly and easily "package" a website complete with all the technical and financial tools needed to do business on the web.

Andreessen also is bringing many of his former colleagues - software engineers and network/systems/database architects - from his Netscape days along with him. A formal announcement about the Loudcloud operation and products will come early next year. Developing...

■ **The 231-year-old Encyclopedia Britannica updates its distribution to the 21st Century- or at least it tried to!** The good news: www.britannica.com said it would offer free online access to the full text of the Encyclopedia Britannica beginning October 18th.

The bad news is that when it did, de-

mand was so high that no one could access it and the site crashed! The initial plan was for Britannica to become a portal site complete with content from newspapers, newswires and magazines ...and the usual portal mix of e-mail, weather forecasts, and financial market reports.

Britannica had been offering online access to their entire 32-volume (\$1,250) encyclopedia on a subscription basis, but sales had been poor. And revenue from its printed sets has declined an estimated 80 percent in the last decade as users turned to the Web, primarily Microsoft's Encarta.

The Chicago-based company has now changed their business strategy and the 44 million word reference will be offered free; its income coming from advertising, sponsorship and e-commerce.

It went online as scheduled and quickly became so jammed with millions of hits that the site was knocked offline after only one day. Engineers from Oracle and Sun Microsystems were quickly called in and the site is expected to relaunch shortly with 4 times more traffic capacity.

Britannica's first edition was issued in 100 parts from 1768 to 1771 in Edinburgh, Scotland and is the "oldest continuously published reference work in the English language." Britannica still plans to publish a new 40-volume "dead trees" version.

■ **All Web sites on the Internet follow a specific form, called the HTML format.** HTML stands for Hyper-Text Markup Language, which describes exactly how text and graphics will be displayed. It specifies text size, font, background color, and other properties. A new extension proposal to HTML involves a command to drop a live television picture onto a Web site. The "tv" instruction treats a TV signal just like an animated graphic image.

■ **Americans are expected to buy anywhere from \$6 billion to \$12 billion worth of presents from home over the Internet this Christmas season.** A survey conducted Oct. 22- 24 by PC Data Online, found that 48 percent of Web users planned to buy more gifts online this holiday season compared with last year.

The most popular online purchases are computer software, followed by music, books, videos; computer hardware; toys; health and beauty aids; apparel; flowers/cards; and travel.

One quarter of Internet buyers have

already started their holiday shopping. Another 40 percent said they will start before Thanksgiving, while 33 percent said they will wait until after Thanksgiving.

Another survey by the NPD Group found that 68 percent of Internet users plan to buy online this holiday season - twice as many as said they purchased online last year.

Research firm Dataquest said it expected online holiday sales to surpass 12.2 billion U.S. dollars, triple that of 1998 with 70 percent of the world's e-commerce revenue coming from the U.S.

■ **One of the problems with online shopping is where do you start!** There are now tens of thousands of Web merchants! Here are some ideas.

Web portals Lycos and AltaVista are both introducing shopping services that bring product reviews, comparison shopping services and ratings from other consumers together into one place. The new shopping services are a way to keep consumers on their site.

The **LycosShop** will allow consumers to rank features they're looking for in a product. See: <<http://shop.lycos.com>> Lycos will also offer links to sites such as E-pinions, which provides product reviews by both professionals and consumers. <<http://www.epinions.com>>

The Alta-Vista portal is introducing **Shopping.com** <<http://www.shopping.com>> which has links to Federal and Airborne Express, U.S. Postal Service and UPS package tracking.

■ **"Shop Online 1-2-3" Magazine and Web site has independently reviewed and rated the top 250 e-commerce sites.** Their writers anonymously ordered and returned products from thousands of online merchants. No site paid to be included in their survey.

This is a good place to start your holiday shopping session since it has links to their various recommended sites. The magazine is published quarterly by the same Des Moines, Iowa outfit that publishes *Better Homes and Gardens*, the *Ladies Home Journal* and a hundred other special interest publications. They also own eleven TV stations in major markets. Don't take this site lightly! Check out: <<http://www.shoponline123.com>>

■ **And still another neat online site rating service site that is worth a look is one that practically no one has heard of!** Gomez.com specializes in

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ranking Web merchants for quality and customer service. Consumers can find the tools for finding and selecting products and companies here. The site also provides product reviews and competitive data. Check out: <<http://www.gomez.com/>>

■ **The American Bar Association has introduced a new safeshopping.org Web site** that gives useful hints for avoiding cybershopping rip-offs. Among them:

- Be sure the Web site uses secure encryption technology to protect credit card numbers.
- Pay by credit card instead of a debit card or check since they can be legally disputed with the credit card company.
- Unauthorized credit card charges are limited to a \$50 maximum.
- Consider dedicating a single credit card to online purchases.
- Read the Web site's privacy policy to find out what information the seller is gathering from you and what they will do with it.
- Check "feedback" and opinion areas where other shoppers rate their experiences with sellers.
- Read the warranty, cancellation and return policy and the firm's liability.
- Make a printout of the Web page that shows the item being purchased.

Check: <<http://www.safeshopping.org>>

■ **Fueled by new Version 5.0 portal software that has skyrocketed in popularity, AOL now has more than 19 Million subscribers.** They added more than 5 million members during the past year alone. America Online's revenues in the quarter ended September 30 rose to \$1.47 billion, up 47 percent over the same period last year. The revenue included \$995 million in subscription income and \$350 million in advertising, commerce, and other revenues.

AOL members are now staying online 15 percent longer than a year ago with up to 1.25 million users being online at any one time – a 50 percent increase over a year ago. And the number of e-mails (80 million a day) is double that of a year ago. The most significant stat is that more than 11 million members are now shopping online. The AOL focus has now changed to e-commerce and the upcoming holiday selling season.

■ **AOL recently agreed to invest \$800 million over the next two years in PC maker Gateway, Inc.,** and to operate its Gateway.net service. San Diego-

based Gateway was the first computer-maker to create its own Internet service.

The joint venture has AOL packaging its online service into all Gateway computers. The companies also will create a co-branded online software store. Gateway, in return, will spend \$85 million in advertising on AOL.

Gateway claims to be the largest PC supplier selling direct to residential "consumer" buyers. AOL also expects to pick up subscribers from among Gateway's five million computer customers.

■ **It is hard to believe that the top-of-the-Web screen "banner ad" is only five years old.** The first banner ad appeared on Oct. 27, 1994. Web sites charge for banner ads in one of three ways:

- per-impression: advertiser pays when banner pops up.
- per click-through: viewer clicks on banner, advertiser pays.
- per-sale: viewer buys, advertiser pays.

Jupiter Communications estimates that by 2002, one-third of the predicted \$7.7 billion in online advertising market will be spent on so-called "rich media."

The key to fast loading rich-media ads is its bandwidth. Most ads are Java-enabled, do not require a plug-in, and are 5KB or less.

Jupiter says that 77 percent of Internet users in 2003 will still be using dial-up Net access. Right now, fast loading ads are important "If it's too big, the ad won't even get loaded and nobody will see it."

■ **A Boulder, Colorado "free" greeting card site recently fetched three-quarters of a billion dollars!** The Blue Mountain Arts electronic greeting card company has been sold for \$780 million to the Excite Web portal service.

What makes Blue Mountain so valuable is the Internet traffic they bring with them. Some 9.2 million visitors send Blue Mountain Arts Publishing Company greeting cards making them the 14th most popular Web site. The greeting cards will remain free of charge.

■ **A number of major personal-computer builders are preparing to launch a new type of next generation Internet device** that does not need Microsoft software and logs-on to the Web automatically without the traditional boot-up sequence.

The device, priced well below a stan-

dard desktop PC, will not contain a hard drive and will have no use for the Windows platform. The Web-only appliances are being developed by Gateway, Compaq and Dell. As a defense mechanism, Microsoft Corp., is said to be developing the "MSN Web Companion," an Internet machine tied to Microsoft's MSN Internet service and based on its stripped-down Windows CE program. [Reported by the *Wall Street Journal*]

■ **Radioactive Media Partners has come up with a way for Web surfers to start their own personalized "juke-box" radio station at no cost.** They will put "Play Music" buttons on the home pages of several Web portals.

"Listeners" can select one of 15 ready-made stations or they can build their own with a mix of music that can be shared with friends by giving them the Web address. Radioactive will take care of paying the royalties to artists and record companies.

They believe free music at portals could be as popular as free email. Their revenue will come from ads sold on the radio stations. Radioactive plans to store its library of some 100,000 (soon to be 200,000) songs on servers at several Internet data centers.

By adding a ZIP code, the user can get a local weather or even a local traffic report inserted into their radio station.

WASHINGTON WHISPERS

■ **I thought we had heard the last of the so-called "modem tax" –** a per minute "access fee" that would be paid by ISPs to their local phone company for connecting their customers to the Internet. An FCC official speaking at the annual convention of the *United States Telecom Association* in San Francisco last month says they will again examine whether or not Internet Service Providers should pay to connect to the local telephone network. At present, ISPs are exempt from payment of access fees.

Telephone companies have for more than ten years complained that ISPs should pay for using their networks because modem users tie up their capacity for hours at a time and argue that they should be compensated. Any access fees imposed on ISPs would likely be passed on to consumers in the form of higher monthly rates. [Reported by MSNBC, Oct. 18th.]

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■ **A "first phase" decision in the United States vs. Microsoft antitrust trial is imminent.** The court's "factual findings" could come at any time. U.S. District Judge Thomas Penfield Jackson's office will notify government and company lawyers after the close of financial markets and the court will post the findings on a Web site specially created for this purpose by the Government Printing Office at <<http://usvms.gpo.gov>>.

By the way, Microsoft has set February 17th as the official day that they will release its long-awaited Windows 2000 -- or we should say to Windows NT 4.0 which is another name for the same thing.

■ **The House of Representatives has voted to make it tougher for so-called "cybersquatters,"** people who register domain names that are already trademarked, or are close to the trademarks, in order to sell them back at higher prices to the trademark holders.

The Senate version of the bill (S. 1255,) has been replaced with the language in the House bill, H.R. 3028.

The legislation makes it easier for trademark owners to sue the accused perpetrator. Once the kinks are worked out in a quick conference session, the bill will go directly to the White House for the president's signature.

AMATEUR RADIO

■ **The 18th ARRL-TAPR Digital Communications Conference held recently in Phoenix** offered a vision of Amateur Radio where individual ham bands are irrelevant and analog is an anachronism.

The wave of the future could be ultra wide band, according to conference speaker Dewayne Hendricks, WA8DZP. Ultra wideband -- or UWB -- is related to new methods of spectrum sharing among large numbers of users. Hendricks described UWB as comparable to a group of people sharing a large house rather than each owning smaller, separate houses. The FCC initiated a Notice of Inquiry last year seeking comment on UWB issues.

Hendricks' presentation suggested that the notion of individual Amateur Radio bands could become irrelevant in a UWB era, where software-driven equipment and spectrum sharing protocols would determine what frequency or frequencies best

suit the desired communication at that particular moment.

Audio from the presentations may be heard at <http://www.tapr.org>. [Adapted from *The ARRL Letter*]

■ Stan Kuck, NY8F, Dayton Amateur Radio Association Scholarship Chairman has asked us to mention that **DARA is now accepting requests for applications for their annual Scholarship Awards.**

DARA has awarded numerous \$2,000 scholarships in the past to assist young amateurs in the pursuit of furthering their education. The only requirements for being considered are that the applicant be a graduating high school senior and hold an amateur FCC license of Novice or higher. All completed applications will be considered.

Requests for applications along with a SASE should be sent to: DARA Scholarships, 45 Cinnamon Ct., Springboro, OH 45066

■ Amateur Radio enforcement news: **Angos Winke, KC6OKA** of Los Angeles, CA and **Scott Swanson, K6PYP** of Pacific Palisades, CA were both advised by the FCC that it has evidence that their repeater is being operated to deliberately interfere with a repeater system in Mexico. "Our evidence indicates that, ...you have engaged in broadcasting, playing music, transmitting tape recordings and the use of high power base systems and unmodulated carriers..." Winke and Swanson were asked to respond within 30 days to several questions concerning the operation of their repeater system including steps taken to insure that no interference is caused to other Amateur licensees in their coverage area or in Mexico ...and whether or not they had transmitted music and tape recordings.

■ **The campaign to clean up the club call sign fiasco continues.** The FCC cancelled four club call signs granted within the past 6 months to **Thomas R. Reynolds, KF6UJP** of Covina, CA. The FCC had written Reynolds on Sep. 15th about the club calls, but he failed to respond. **James T. Schliestett W4IMO** of Cedartown, GA has voluntarily relinquished 8 club call signs but wants to retain W4CAN and W4HTS. **James H. Roach KD6VWK** of San Juan Capistrano, CA has relinquished 9 club call signs but wants to retain 4 others. The commission has asked for additional information from these two amateurs. Also the FCC cancel-

led the W1GAS club call sign of the "Flatus Amateur Radio Team" granted to **Joseph A. Keller W8WW** of Lake Worth, FL.

■ The FCC has the authority to readminister any examination element previously administered by Volunteer Examiners. Accordingly, **Norman C. Ball, KE6VWN** (Technician, La Crescenta, CA), **Anna M. Torrellas AB2AG** (Extra Class, Yonkers, NY), **Carlos E. Rodriguez KP4AB** (Extra Class, Rio Pedras, PR) and **Sam W. Jacobs K3SAM** (General Class, Latrobe, PA) have been ordered to retake all of their license examinations before Commission personnel at various FCC Offices. **Kenneth W. Walker N9WZE** (Advanced, Class, Brookport, IL) and **Stuart I. Linder N8WLY** (Technician, Cincinnati, OH) were ordered to retake their license exams under the auspices of the ARRL VEC.

■ **Robert A. Lutz W2BZR** of Damascus, MD was reminded of the power limitations that apply to Technician Plus licensees. **Fred C. Hening, K4MPI** of Tallahassee, FL was sent an *Official Warning Notice* advising "...the Commission has information that you have used the call sign KG4US, a call sign not assigned to you, to identify your station, and that you have operated using that call sign on 3.793 MHz, a frequency not assigned to General Class licensees." Repeat instances will lead to a fine and license revocation.

■ **James R. Mason, K5DWO** of Plano, TX has been sent an official Warning Notice by the FCC advising that the agency has evidence that he has "...been deliberately and maliciously interfering with repeater operations of other licensed Amateurs in the McKinney, Texas area.

This interference has occurred at various times in the past year and includes obscenity, profanity and one way broadcasting." The repeater involved is W5MRC. "Such operation -- even one incident -- will not be tolerated and will result in a monetary fine being levied against you and in revocation proceedings before an Administrative Law Judge," Riley Hollingsworth said.

Hollingsworth also advised that his job title has changed from "Legal Advisor for Enforcement, Compliance & Information Bureau" to "Special Counsel for Amateur Radio Enforcement" in the new Enforcement Bureau. "Amateur enforcement will continue at the same pace," he said.

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FCC BEGINS RESHAPING FOR THE 21ST CENTURY

"We are standing at the threshold of a new century, a century that promises to be as revolutionary in the technology that affects our daily lives and the future of our country as the inventions and innovations that so profoundly shaped the past 100 years. Just as the internal combustion engine, the telephone, and the railroad brought about our country's transformation from an agricultural to an industrial society, the microchip, fiber-optic cables, digital technology, and satellites are fueling our transition from an industrial to an information-age society."

"As the marketplace changes, so must the Federal Communications Commission (FCC). The top-down regulatory model of the Industrial Age is as out of place in this new economy as the rotary telephone. As competition and convergence develop, the FCC must streamline its operations and continue to eliminate regulatory burdens. Technology is no longer a barrier, but old ways of thinking are." *[Testimony of William E. Kennard, Chairman, Federal Communications Commission Before The House Subcommittee on Telecommunications, August 12, 1999.]*

On October 26th, the Federal Communications Commission (FCC) announced the official creation of two new bureaus – the Enforcement Bureau and the Consumer Information Bureau – that will become effective November 8. FCC Chairman William Kennard made the announcement during testimony today before the House Telecommunications Subcommittee on the FCC's 5-Year Strategic Plan.

This change will enhance the FCC's ability to serve the public by improving the effectiveness of the agency's enforcement program in an increasingly competitive communications marketplace. It will also maximize the ability of consumers to obtain quick, clear and consistent information about their rights under communications law.

Kennard said, "Our decision to establish bureaus devoted exclusively to enforcement and consumer information signals the enormous importance of these functions in our transition from an industry regulator to a market facilitator. This reorganization is the first step in a larger effort to streamline and modernize the FCC. I look forward to continuing to work with my colleagues at the Commission and in Congress to implement the additional measures that will be critical to redefining ourselves as we enter the 21st Century."

The reorganization was initially adopted by the Commission in July 1999, and subsequently approved by the Senate and House Appropriations Committees and the National Treasury Employees Union Local 209.

FCC ENFORCEMENT BUREAU

Kennard said David H. Solomon has been named Bureau Chief of the Enforcement Bureau, which consolidates enforcement functions and personnel from the Commission's existing Common Carrier, Mass Media, Wireless Telecommunications and Compliance and Information Bureaus.

The new Enforcement Bureau will be the primary FCC organization responsible for enforcement of the *Communications Act*, as well as Commission rules, orders and authorizations. The Bureau will have four divisions: Telecommunications Consumers Division, Market Disputes Resolution Division, Technical and Public Safety Division and an Investigations and Hearings Division.

The Enforcement Bureau also includes the FCC's existing Regional and Field Offices, which are responsible for handling a variety of on-scene investigations, inspections and audits in response to complaints and in support of the Commission's operations. Certain enforcement activities will remain in existing bureaus.

FCC CONSUMER INFORMATION BUREAU

Kennard announced his intention to name Lorraine C. Miller to be Bureau Chief of the Consumer Information Bureau, which consolidates the FCC's Gettysburg Call Center, the Office of Public Affairs' Public Service and Reference Operations Divisions, most of the existing staff in the Wireless Telecommunications and Common Carrier Bureaus responsible for facilitating resolution of informal consumer complaints, and staff from other bureaus responsible for handling public information requests.

[Adapted from FCC news release]

Congress Says FCC Revamp Taking Too Long

Republican and Democratic members alike at an October 26th House subcommittee meeting were at odds with the FCC commissioners, with the chairman of the subcommittee telling the agency that its reform process is taking far too long. FCC reform is on FCC Chairman Bill Kennard's fast track, but the calendar is not moving ahead at the pace Congress wants.

House Telecommunications Subcommittee Chairman W.J. "Billy" Tauzin, (R-La.), said he was disappointed that a recent working group he convened on the subject of FCC reform discovered that many telecom companies were willing to talk about their problems with the agency – but only off the record for fear of agency reprisal.

"I'm disappointed with the willingness of the regulated community to come forward," Tauzin said. "That in itself is ringing testimony that there's something wrong with the process. Five years is simply twice as long as we believe is necessary."

Kennard earlier this year outlined a five-year plan to turn the FCC into a more streamlined – and "fast, flat and focused" – agency, which involves a redistribution and reorganization of bureaus, though Tauzin and other Republicans feel the FCC is not focusing fast enough.

Lone Republican FCC Commissioner Harold Furchtgott-Roth suggested that the FCC actually is making up its telecom policy as it goes along, though Kennard said that "I don't think there's a lot of mystery. We are charged with a public interest review." *[Reported by Newsbytes.com]*